NPAC

MEMO: September 23, 1996

TO: Marek Podgorny

FROM: Scott Klasky

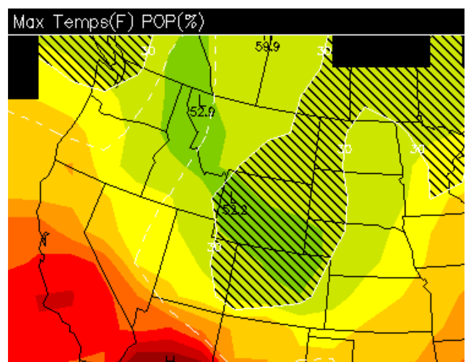
RE: Rome Lab Weather Plan

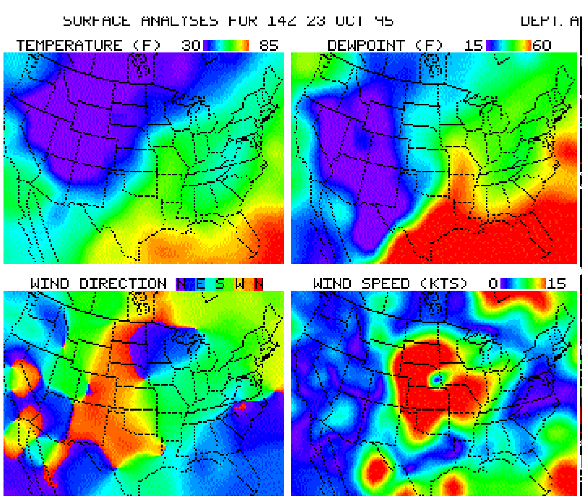
CC: Steve Warzala

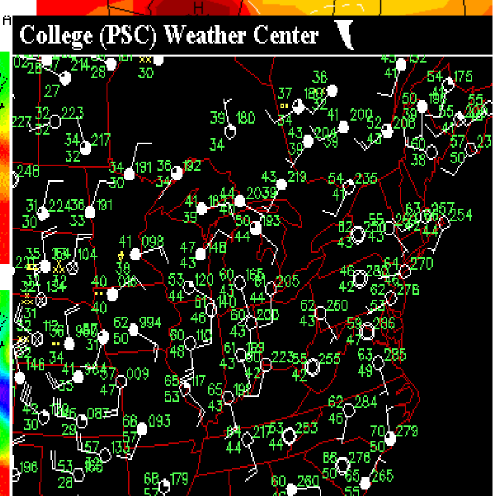
Marek,

I propose that we design the following weather visualization package, based upon the following web pages, and ideas. The first part of this package will be the "server" part which is the code which will obtain the weather data from different ftp sites. We can model this system after, or possible use, UNIDATA. The web page for this can be found at (`http://www.unidata.ucar.edu`). There is various software here including software that will obtain the weather data and put it on a local machine, software to manage the data on the machines, and software to analyze the data.

There system will not only allow us to obtain conventional weather reports from sites such as the National Weather service, but it will also allow us to obtain data from Supercomputing forecast models. Thus, we would be able to obtain output of a variety of forecast models run on supercomputers at the National Centers for Environmental Prediction and the European Center for Medium Range Weather Forecasting. Thus we can show output from the code, like the diagram shown to the right. Conventional weather maps range from figures such as the ones shown below.



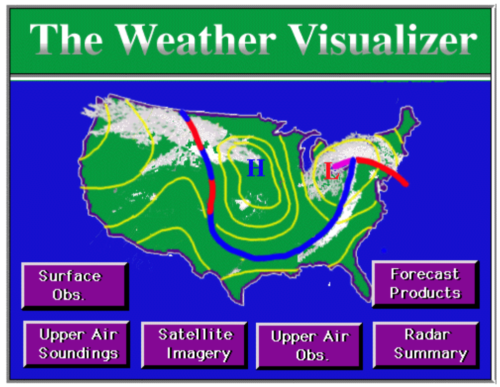




The next step in our weather visualization plan is to incorporate this data system into our GIS. This should not be difficult, since we should have all of the software to uncooperative this server, and all it will do is get data from different servers. This program is public domain, and is of no cost to

111 College Place
Syracuse University
Syracuse, New York 13244-4100

NPAC. To view the data, we would like to model NCSA's Covis package (`http://covis.atmos.uiuc.edu/covis/visalizer`).



This is a java applet which we can use to access the latest satellite weather images (and data obtained from UNIDATA) and display the results. Here we will be able to view data from all of the world, and customize the data maps in the applet. It will then be possible to play back the weather in various locations, which can help show trends to help us predict the weather for ourselves. Another unique aspect of our Java visualizer can be to display 3D-VRML images of current weather. By looking at different levels in the atmosphere, we can piece together a 3D image. Then using our Java-Marching cubes isosurface routine, developed here at NPAC, we can display these results in a VRML browser. This can hopefully provide insight of how the clouds will appear in a particular region. The open question to this is: Is the data too sparse, i.e. can we really build a 3D image out of the 2D slices?

The next question to ask is if we are moving to far away from what we said we would do for Rome Labs. The answer is NO. Working with CAPS, we should easily be able to make our server work with ARPS data. Thus, this would give us a truly unique way of visualizing the ARPS data. And when they do provide us with data over this region, we should be able to